

Newsletter

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WELLINGTON ASTRONOMICAL SOCIETY

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THIS MONTH'S MEETING FEATURES: "The Power of the Sun" presentation by Murray Forbes

Wed 7th July at 7:30pm
at Carter Observatory
In the 19th century, before
radioactivity and atomic
theory was discovered,
debate raged among the
scientists of the day about
the source of the Sun's
energy. The major problem
with the known energy
sources is that none of
them could power the Sun
for very long. In this talk
I will explain what these
sources are, the problems
with them and the solution
that was ultimately found.

07-2010

Wellington
Astronomical
Society



WAS Special general Meeting Notice. Constitutional change

A Special General Meeting will be held at 7:30 pm on Wednesday 4th August at Carter Observatory before the normal monthly meeting scheduled for that night.

The following change to the Quorum requirements for General Meetings has been moved:

Current wording:

Section 16 (7) The quorum for all General Meetings of the Society shall be 25 Ordinary, Associate, Family or Life Members present in person. No business shall be transacted at any General Meeting unless a quorum is present at the commencement of such meeting. If within 30 minutes from the time appointed for the holding of the meeting a quorum is not present, the meeting if convened upon the requisition of the members shall be dissolved.

In any other case, the meeting may be adjourned by the chairperson to such time and place as he or she may appoint.

Proposed wording:

Section 16 (7) The quorum for all General Meetings of the Society shall be calculated from the total number of all Ordinary, Associate, Family or Life Members of the Society. This quorum will be either 25% of the total number or 25 such Members, whichever is the lesser amount. No business shall be transacted at any General Meeting unless a quorum is present at the commencement of such a meeting. If within 30 minutes from the time appointed for the holding of the meeting a quorum is not present, then

the meeting shall stand adjourned to the next scheduled normal meeting date, place, and time, and if at the adjourned meeting a quorum is not present within 30 minutes from the time appointed for the meeting the number of persons present and entitled to vote at the expiration of that time shall constitute a quorum.

Explanation:

When the number 25 was originally put in the constitution we had about 100 members. In 2008 we did not have 25 members available at the November meeting and the AGM had to be postponed to December. The current paid up membership is about 70 so a quorum of 25% would be about 17. This approach to quorum definition would minimise the risk of failing to meet quorum if membership or attendance numbers should fall again and defines a method to ensure a quorum at the next meeting.

The proposed adjournment sub clause constrains opportunity for a hostile takeover to take place. It is suggested that discussion be allowed about the actual percentage and number etc and if someone wants to propose amendment(s) to this motion then that should be in order.

If a proposed amendment is adopted then the new substantive motion should be put to a separate vote and if the amendment fails then the original motion should be put to the vote or other amendments be considered.

This is being moved as an SGM rather than at the AGM so that it can be in effect by the next AGM.

It is also moved that the Registered Office be amended:

Current wording:

Section 20. (1) The registered office of the Society shall be situated at Science House, Turnbull Street, Thorndon, WELLINGTON, or such place as the Council shall decide from time to time.

Proposed wording:

Section 20. (1) The registered office of the Society shall be situated at Carter Observatory Botanic Gardens Upland Road WELLINGTON, or such place as the Council shall decide from time to time.

Explanation:

As we no longer meet at RSNZ it seems more appropriate to have Carter as our registered street address where we have a number of members on staff.

Proposed: *John Talbot*

Seconded: *Gordon Hudson*

Dated: 30-May-2010

CARTER VOLUNTEERS

Remember we are now based at the New Carter Observatory and at the first meeting at Carter I called for volunteers to assist in the running of the very famous Thomas Cooke Refractor at Carter on Saturday evenings. Carter will be open to the public every Saturday evening and the Wellington Astronomical Society will be assisting in running this telescope and maybe another as well.

The response for volunteers was very encouraging and we have 15 names down as volunteers. Claire from Carter will be in



touch by e-mail with each of you as to how the roster will work. Remember we are getting the full use of these facilities for our meetings once a month for nothing.

When we were at the Royal Society Rooms we were paying up to \$1000 per year. So any contribution you make will be a huge saving for the society. So think of it as your contribution to help the society to save some money.

Royal Astronomical Society of
New Zealand Email Newsletter
Number 115, 20 June 2010
www.rasnz.org.nz/

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If you would like a copy of the newsletter please ask John Homes or John Talbot to forward by email



PRESIDENT'S REPORT FOR JUNE

The **June talk** at the new Carter Observatory was presented by Hari Mogosanu, our newsletter editor.

She talked to us about the star cluster "the Pleiades" (Matariki, Subaru, Seven Sisters) this was a most enlightening talk. Thanks Hari.

After Hari's talk we were supposed to go into the new planetarium where John Field was to present the Night Sky for us. However owing to a technical hitch with Hari's Mac to the Carter system we changed around and went into the planetarium first which gave Hari time to sort out the connection problem with her Mac. All worked out nicely in the end.

The monthly Night Sky at the Pauatahanui observatory had to be cancelled because of the ground conditions at the site. I visited the site earlier in the day on my way to the opening of JohnField's new observatory and found the ground very boggy and not suitable for walking on unless you had gumboots and that is not good as mud could get inside the observatory. The weather at the time was raining but by 7:00 PM it cleared and stars were out but we had already cancelled owing to the ground condition.

The new Research Group meeting will begin at the July meeting starting at 6:30 PM one hour before the main meeting

when Murray Forbes will be the main speaker. If you are interested in taking part but can't make the meeting let John Talbot or me know.

At the August meeting we have set down as a Special Meeting to discuss and alter the constitution in preparation for this years AGM.

The Filters that WAS ordered from SBIG in the USA have arrived unfortunately we had to pay GST on these as the total cost came to over \$1600NZ.

The filters have been fitted to the filter wheel and have been tested on the telescope. However before I can start doing CCD Photometry I need to observe a series of Standard Stars which will test out the optics in my telescope.

The observing of the **partial Lunar eclipse** from Tawa College was cancelled because of the bad weather. We are not having a lot of luck with observing lately because of bad weather.

The Volunteer programme running at Carter for WAS members to assist Ross Powell on a Saturday evening seems to be going alright but we could do with some more volunteers. Those members who put there names on the list should contact Ross as we have to keep this program running.

In **July** there are some interesting **events** coming up.

On July 9-10-11 there is the Gissy Gathering, this is a weekend for Astrophotographers at John Drummond's place in Gisborne for details see John's website www.possumobservatory.co.nz

On July 15th Heather Cooper & Nigel Henbest from the UK will be giving a presentation at Carter, for details go to Carters website www.carter.org

On the 30th June the Carter Observatory ownership will be transferred over to the 'Wellington Museums Trust' (WMT) this means all staff will also be transferred to the WMT but the trust is still owned by the Wellington City council.

Remember we have a **grazing occultation** occurring on July 21st passing through Pukerua Bay and heading over to the Wairarapa. For more details come along to the Research Group meeting (see details page 9) on July 7th at Carter, starting early at 6: 30 PM.

Finally the Old Carter Planetarium has been sold to the Northland Astronomical Society and left Wellington on a truck on Wednesday and arrived in Whangarei on Friday 25th June. They hope to have it up an running by the end of this year or the beginning of next year. It will be rebuilt on the Manu Museum complex grounds on the edge of the city where their observatory is placed.

June Crossword answers

Across 1. REDPLANET, Mars; 5. ZODIAC, also a small inflated rubber boat; 9. CLUSTER, An open or globular ...; 12. SMC, satellite galaxy to the Milky Way; 15. SCHMIDT, type of telescope; 16. AZIMUTH, horizontal angle around the sky; 17. DINOSAURS, an asteroid may have done them in; 22. DARWIN, proposed theory of evolution; 26. SOHO, satellite observatory studying the Sun; 28. HALO, angels and galaxies both have one; 31. NEAREARTHOBJECT, NEO (abbrev); 33. POLARIS, The North Star; 35. VIRGO, Constellation with Spica; 36. MESSIER, a catalogue; 37. ICE, frozen liquid; 40. DAY, 24 hours; 41. BINARY, a double star; 43. LEO, A lion circling the Earth; 45. ION, an arrested atom; 46. LATITUDE, allow some leeway; 49. CANOPUS, Antah; 51. REFLECTOR, type of telescope; 52. RUTHCRISP, Carter Observatory's public telescope; 53. PELE, volcano on Io;

Down 1. REDDWARF, Main Sequence stars cooler & smaller than the Sun, also the

name of a cult sci fi/comedy series; 2. DEWCAP, used to prevent moisture condensing on a telescope; 3. ECLIPTIC, plane of Earth's orbit around the Sun; 4. MASS, I weight 6 times less on the Moon, but still have the same ???; 6. EARTH, Tellus; 7. KIWI, New Zealander; 8. LMC, could be mistaken for a cloud; 9. CEPHEID, A type of pulsating variable star, often used for distance measurements; 10. HST, an orbiting telescope; 11. HOUR, unit of time; 13. GAS, solid, liquid or ...; 14. NADIR, opposite to zenith; 18. LONGITUDE, Latitude and ?; 19. UFO, flying saucer; 20. ECLIPSINGBINARY, dip singer in bay (anagram); 21. IO, One of the Galilean satellites; 23. ANDROMEDA, Largest galaxy in the Local Group; 24. ASTEROID, road site (anagram); 25. SHEPHERD, astronaut; 27. HELIUM, second most common element; 29. VENUS, a very cloudy planet; 30. LOKI, volcano on Io; 32. REDGLANT, A type of star whose core hydrogen has been used up.; 34. ATOM, smallest indivisible piece of a element; 38. SIDEREAL, star time; 39. BAR, some spiral galaxies have one; 42. VEGA, alpha Lyr; 44. ECLIPSE, to block light from another object; 47. TAURUS, You don't want this constellation in a China shop; 48. NOON, mid-day; 50. NOV/A, a new star;

Building a back garden observatory - part two

by John Field

Last month I discussed what you should think about prior to commencing building a backyard observatory. In this month's article I will go through process in which the floor of my back yard observatory was built.

In late 2009 purchased a 2.3 meter Sirius Dome and a Takahashi TS-225 Schmidt-Cassegrain telescope and EM200B mount and pier from Anne Stark that belonged to her late husband Bevan Burgess; both were Was members for many years. The dome and telescope had been installed on their property in Te Horo. The dome was dismantled and stored in my garage until work could commence in April 2010.



The Plan

The design of the foundations consisted of a central 650mm square by 1m deep steel reinforced concrete mass on to which the telescope pier would be mounted. Surrounding this were 4 piles for the inner floor joists and an outer ring of eight piles for the outer floor joists. The plies consisted of 150mm square H4 treated timber and the floor and joists of treated timber and plywood. The dome would then be bolted on to the plywood deck. The central mount for the pier would

be separate to the floor and dome to ensure that no vibration would be transmitted to the telescope. Power and data cables will be run from the garage to the dome.

Construction

For the actual construction I engaged the services of a builder, Hein, with myself acting as general helper. This made the construction much faster, easier and led to much better job than trying to do this as a DIY project! The actual floor design is similar to a standard house but on a much more compact area. The project was done over three weekends.

Day One

We marked out the position of the central pier and the piles. These were then augered out the holes with the aid of a machine. Stokes Valley clay is not the easiest to dig through and we discovered a large number of rocks and other items causing us lots of "fun". Once dug out the holes were cleared and the wooden piles cut to suite the holes and slope of the ground.

Day Two

A wooden box was made for the central pier and a template was made for inserting the bolts for mounting the pier after the concrete had been poured. All the holes were cleared on any debris and in the case of most after a rainy few days a lot of water! Polystyrene sheets were place between the inner four piles and the central pier to act as vibration absorbers. The concrete arrived half an hour early leading to a little extra stress.

Continued on page 9

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RASNZ 2010 Conference Report

by Martin Unwin: *Canterbury Astronomical Society*, edited and adapted by John Field. The 2010 RASNZ Annual Conference was held in Dunedin over the weekend of 29-30 May.

The conference had to compete with some determined interference from the elements, following a week of wet weather which culminated in road closures throughout coastal South Canterbury and Otago. An unexpected event happened for the organisers on Friday during the afternoon excursion up the venerable Taieri Gorge railway line. The train was delayed for nearly four hours as freshly minted waterfalls bought down slips which had to be manually dug out by the train crew and work gang. This gave plenty of opportunity for attendees to chat, and not all about the weather! But once the opening session got underway - albeit a little late - the rest of the operation ran very smoothly, reflecting a great effort from the local organisation committee and the Dunedin Astronomical Society.

Of the three conferences I have been to during my brief involvement with RASNZ this was easily the best in terms of having a variety of interesting talks pitched at a level which was accessible to relative newcomers while offering plenty of meat for more experienced attendees. For the benefit of those who missed out, here are some of the highlights - very much my own personal selection, but hopefully enough to give the flavour of the event, and to encourage more people to attend next year's conference in Napier.

Bill Allen opened the conference with an extended talk on 50 Years as an Amateur Astronomer. Bill was heavily involved with CAS during its early years, while studying electrical engineering at UC, and later with the Beverly Begg Observatory in Dunedin. His Blenheim observatory now hosts the Yock-Allen telescope, part of an international network dedicated to studying the optical after-glow of gamma ray bursts. His remarkable record shows just how much can be achieved by a committed amateur.

At the other end of the conference, Dr Stuart Ryder (Australian Gemini Scientist, Anglo-Australian Observatory) gave a public lecture on supernovae, following up an earlier presentation on hunting

out supernovae in heavily dust-obscured galaxies. Dr Ryder's talk emphasised the increasing importance of laser guide star adaptive optics, thereby highlighting what turned out to be a significant theme of several other presentations: the rate at which technological advances are changing the face of astronomy. In one of these talks, Steve Gibson (UC) described his doctoral project to design and build a prototype high resolution astronomical spectrograph for 1-4 m class telescopes.

Another talk by Industrial Research Ltd. scientist (and amateur astronomer) Warwick Kissling, looked at some of the mathematics behind both Steve Gibson's and Stuart Ryder's projects. Despite the unlikely-sounding title (*Zernike Polynomials and their Applications in Optics and Astronomy*), this talk showed how optical defects such as coma and astigmatism can be identified and corrected in real time, thereby underpinning the success of adaptive optics. But the prize for the most awe-inspiring look at technology was surely the talk by Dr Sergei Gulyaev's (Director of the Institute for Radiophysics and Space Research, AUT University) on the Square Kilometre Array (SKA) and AUT's radio telescope. If completed as currently envisioned by Dr Gulyaev, SKA will turn radio astronomy into a global scale phenomenon. In one version of these plans New Zealand may even have a role to play by hosting at least one, and possibly two elements of the Australian SKA Pathfinder (ASKAP) telescope.

Canterbury's Professor John Hearnshaw presented two informative talks, one detailing a new programme at Mt John using the Hercules spectrograph to detect Earth-mass planets orbiting either alpha Cen A or B, and another describing some unusual perturbations in the orbit of the binary star ϵ Octantis. The most natural interpretation of these is that they are due to an unseen planet with about 2.5 Jupiter masses but this explanation works only if the planet is in a precise 5:2 resonance with the binary, an orbit which current theory predicts should be highly unstable.

Karen Pollard gave an overview of Astronomy at the University of Canterbury, covering not only the academic and research programme but also some of their public outreach. My vote for the best talk of the conference goes jointly to two of Karen's PhD students, Emily Brunsdon and Florian Maisonneuve, who described their work in the rapidly developing sub-discipline of astroseismology. Emily (in the first year

of her studies) gave a concise introduction to the topic, which is concerned with vibrational physics in stars. These vibrations are analogous to the vibrations in musical instruments, and provide a window into the deep internal workings of a star. Florian (now in his final year) followed this up with a detailed look at one of his target stars, showing how the high resolution spectroscopic data (once again, provided by Hercules) allows the pulsations to be broken down into individual components, each with its own characteristic frequency and mode of pulsation. Having identified the dominant modes, the challenge is then to build plausible mathematical models of the stellar interior which are consistent with observations. To go beyond the All going well we hope to arrange for Emily to give a talk to CAS on this topic later in the year.

Light pollution rated two presentations, including a brief but encouraging report by Gregor Morgan of the Dunedin Astronomical Society on their efforts to promote sensible lighting practices to the Dunedin City Council. Gregor described how he and his fellow members took advantage of a new walkway development along the Otago Harbour foreshore, featuring effective and well designed pathway lighting with minimum light spill, to present the council with an appropriate award. Only one small step, as Gregor hastened to point out, but a great example of what can be done at the local level to raise council awareness. Later, Steve Butler of the RASNZ DarkSkies Group gave an overview of the activities, highlighting their successes and identifying some of the (many) remaining challenges. A key theme was the importance of ensuring that properly worded statements are included in relevant council planning documents. Mundane, perhaps, but this is how public policy operates.

Dr Thomas Richards of Variable Stars South (VSS, which started out as the Variable Star Section of RASNZ, under Dr Frank Bateson) spoke on *The Lure of Eclipsing Binary Stars*. Always entertaining, Tom emphasised both the astrophysical importance of these objects and the rewards they offer for amateur observers because of their fast-changing behaviour. This is important work that CAS could, and should, be involved in, and we hope to arrange for Tom to give a follow-up talk online to a forthcoming monthly meeting. Equally entertaining was Denis Sullivan's talk *Why are White Dwarf Stars so Interesting?*

Continued on page 8



The Evening Sky in July 2010

Venus, the brilliant 'evening star' (planet really), appears in the northwest soon after sunset. It sets in the dark mid-evening sky making it an eye-catching object. It is bright enough to cast shadows in dark places. In a telescope its shape is like the moon just after first quarter. Venus is the same size as the earth and around 150 million km from us this month.

Venus, Mars and Saturn make a line up the northwest sky most of July. Mars is the fainter of the three and has a reddish tint. At the beginning of the month the three planets are equally spaced. By mid-July Venus and Mars will have moved closer to Saturn. At the end of the month Mars will be passing Saturn, making a widely spaced pair of 'stars' above Venus. This is all line-of-sight, of course: Mars is around 280 million km from us, on the far side of the sun, while Saturn is 1480 million km away. Mars is too small to be of interest in a telescope now. Saturn is worth a look. Its rings are nearly edge-on, looking like a spike through the globe of the planet. In July Mercury begins its best evening appearance of the year. At the end of the month it will be low in the early evening sky, on a line down from Mars and Venus.

Sirius, the brightest true star, sets in the southwest in early twilight twinkling like a diamond. Canopus, the second brightest star, is in the southwest at dusk. It swings down to the southern skyline before midnight then climbs into the southeast sky through the morning hours. Canopus is a truly bright star:

13 000 times the sun's brightness and 300 light years* away.

South of the zenith are 'The Pointers', Beta and Alpha Centauri. They point

to Crux the Southern Cross on their right. Alpha Centauri is the third brightest star in the sky. It is also the closest of the naked eye stars, 4.3 light years away. And it is a binary star: two sun-like stars orbiting each other in 80 years. A telescope magnifying 50x will easily split the pair. Beta Centauri, like most of the stars in Crux, is a blue-giant star hundreds of light years away.

Arcturus, in the north, is the fourth brightest star in the sky, and the brightest in the northern hemisphere. It is 120 times the sun's brightness and 37 light years away. When low in the sky Arcturus twinkles red and green. It sets in the northwest around midnight.

East of the zenith is the orange star Antares, marking the heart of the Scorpion. The Scorpion's tail, upside down, is stretched out to the right of Antares making the 'fish-hook of Maui' in Maori star lore. Antares is a red giant star: 600 light years away and 19 000 times brighter than the sun. Red giants are dying stars, wringing the last of the thermo-nuclear energy out of their cores. Big ones like Antares end in massive supernova explosions. Below Scorpius is 'the teapot' made by the brightest stars of Sagittarius. It is also upside down in our southern hemisphere view.

The Milky Way is brightest and broadest in the east toward Scorpius and Sagittarius. In a dark sky it can be traced up past the Pointers and Crux, fading toward Sirius. The Milky Way is our edgewise view of the galaxy, the pancake of billions of stars of which the sun is just one. The thick hub of the galaxy, 30 000 light years away, is in Sagittarius. The actual centre is hidden by dust clouds in space. A scan along the Milky Way with binoculars shows many clusters of stars and some glowing gas clouds.

The Large and Small Clouds of Magellan, LMC and SMC, look like two misty patches of light low in the southern sky. They are easily seen by eye on a dark moonless night. They are galaxies like our Milky Way but much smaller. The large cloud is 160 000 light years away; the small one 200 000 light years.

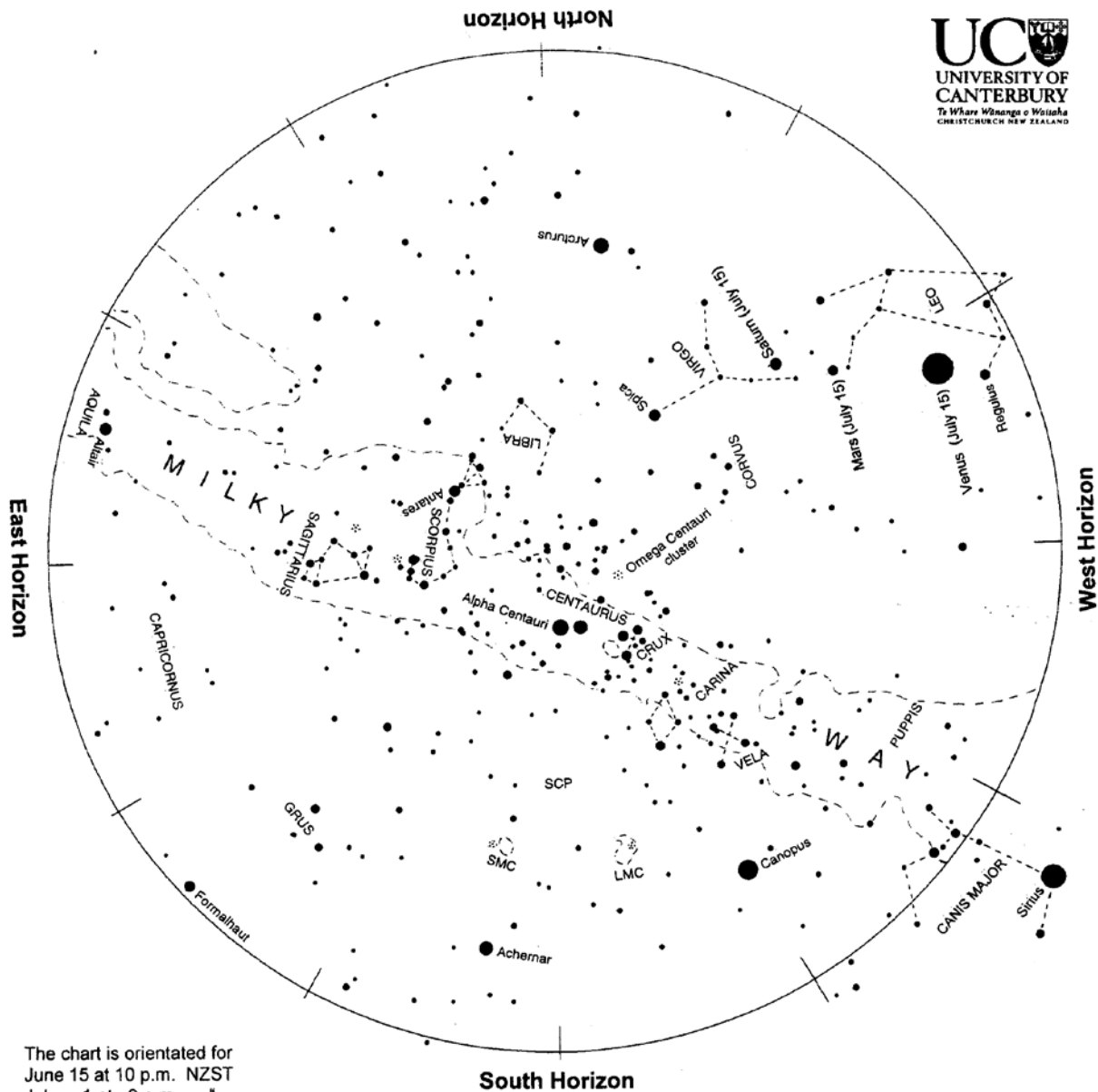
Jupiter (not shown) rises in the eastern sky around 11 pm mid-month. It is the brightest 'star' in the late night sky and shines with a steady golden light. Binoculars show the disk of Jupiter and perhaps one or two of its bright moons. A small telescope easily shows all four moons and stripes in Jupiter's clouds.

**A light year (ly.) is the distance that light travels in one year: nearly 10 million million km or 10¹³ km. Sunlight takes eight minutes to get here; moonlight about one second. Sunlight reaches Neptune, the outermost major planet, in four hours. It takes four years to reach the nearest star, Alpha Centauri.*

Notes by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz

OBSERVING AT THOMAS KING

All public observing evenings will be held at the Thomas King Observatory run by our Observatory Director Ross Powell. from 7:30. There are public observing evenings at the Thomas King every FRIDAY starting as soon as it gets dark depending on the weather. **Ring Ross on 389 9765.**



The chart is orientated for
 June 15 at 10 p.m. NZST
 July 1 at 9 p.m. "
 July 15 at 8 p.m. "
 Aug. 1 at 7 p.m. "

Evening sky in July 2010

To use the chart, hold it up to the sky. Turn the chart so the direction you are looking is at the bottom of the chart. If you are looking to the south then have 'South horizon' at the lower edge. As the earth turns the sky appears to rotate clockwise around the south celestial pole (SCP on the chart). Stars rise in the east and set in the west, just like the sun. The sky makes a small extra clockwise rotation each night as we orbit the sun.

Venus, the brilliant 'evening star', is seen in the northwest at sunset and sets mid evening. Mars and Saturn are above Venus. At the end of the month Mercury appears below Venus. Sirius, the brightest real star, sets in the southwestern twilight. Canopus, the second brightest star, is low in the southwest and swings down to the southern horizon later. The Pointers and Crux, the Southern Cross, are south of the zenith. Orange Arcturus in the north often twinkles red and green. The Scorpion is on its back high up the eastern sky with Sagittarius below it. Jupiter (not shown) rises in the east around 11 pm.

Chart produced by Guide 8 software; www.projectpluto.com. Labels and text added by Alan Gilmore, Mt John Observatory of the University of Canterbury, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz



Heather Cooper & Nigel Henbest

The Couper Henbest talk at Carter Observatory will be at 7pm on Thursday 15th July and entitled "Cosmic Quest".

There will be a Gold Coin donation. This will be assist with accommodation and supper.

Cosmic Quest: a History of Astronomy

A stunningly illustrated presentation by Heather Couper and Nigel Henbest

Our glorious night sky is the ultimate landscape. But where do we fit in? For thousands of years humankind has sought to find our place in the Cosmos. Starting with superstition, astronomy has flourished into the most all-embracing of the sciences.

This presentation concentrates on the people and personalities who have asked questions about the Cosmos. Starting with the Greeks, humans have striven to understand the Universe. Does the Sun travel around the Earth; or the Earth around the Sun? What are fearsome-looking comets? How big is the Cosmos?

With each question answered, dozens appear as if from nowhere: black holes, dark matter, planets around other stars, and the ultimate future of our Universe.

And ... is there life out there?

SKYLINE CARPARK

A short note to confirm that Wellington City Council has taken over the Skyline carpark and entry signage will be installed as soon as we can get it made. Other signage will follow from 1 July 2010.

The carparks will now be part of the Pay & Display parking proposal going to Council. Here is the text for the temporary entry sign: Wellington Botanic Garden, P120

This Carpark is for visitors to Wellington Botanic Garden, The Cable Car Museum, Carter Observatory, the Cable Car and the Skyline Restaurant only

Answers to BP Stellar Cruxword *June 2010: Across: 1 Marathon; 7 open; 8 spider; 10 USSR; 11 Big Mac; 13 multiverses; 16 rosier; 18 demo; 20 obiter; 21 deci; 22 disc star. Down: 2 Alps; 3 AIDR; 4 herbivorous; 5 no agar; 6 beta; 8 summer; 9 isel; 12 Castor; 14 trifid; 15 stet; 17 ones; 18 dips; 19 mega.

OBSERVING AT PAUATAHANUI

The next observing evening at Pauatahanui will be on July 10th starting at 7:00 PM. Chris Mongatti will be in charge.

Continued from page 5

One of the more striking things I learned from this was that, during the initial cool-down phase after the core collapse of their progenitor star, while dwarfs can emit up to 80% of their energy flux in the form of neutrinos. Finally, a special mention goes to Ross Dickie for his talk A Noctilucent Cloud Observed from Gore. In February 2009 Ross had noticed a long horizontal cloud with an unusual blue tinge low in the astronomical twilight, and wondered if it might be a noctilucent cloud[1]. Not content with speculation, Ross had gone to considerable trouble to check out possible alternative explanations, noting in particular that the event coincided with the Australian bush fires which devastated Victoria at that time. By piecing together information gleaned from the web, including various satellite and meteorological data sources, he was able to demonstrate conclusively that his hoped for noctilucent cloud was in fact a layer of smoke seen at an unusually high altitude. All in all, a great example of how an amateur observer who is prepared to ask a few well directed and intelligent questions, and do a little basic groundwork, can enhance their understanding of even a casual observation such as this by applying the basic principles of scientific inquiry. One of the other functions of the annual conference is to hold the RASNZ AGM, and elect the incoming committee. Special thanks are therefore due to the outgoing president Dr Grant Christie, and Brian Loader who steps aside this year after serving as secretary for many years. Abstracts of all papers are available from the RASNZ website at <http://www.rasnz.org.nz/>, and the complete set of overheads will be made available to conference attendees over the next few months. As noted, next years conference will be in Napier and it would be great to see a sizable group from WAS attending. Many thanks to Martin for use of his article.

[1] Noctilucent (night-shining) clouds are formed from ice crystals at altitudes of 75-85 km, occasionally seen late in the summer twilight at latitudes between 50° and 70° north and south of the equator. They remain poorly understood.

Hudson Lecturer for 2010

Wednesday July 7th 2010: Science House 7:00 – 8:30 PM

The 2010 Hudson Lecturer is Dr. Melanie Johnson-Hollit of Victoria University of Wellington. The subject of the lecture will be:

"Exploring Astrophysics in the Radio Renaissance"

Across the world radio astronomers are gearing up for a plethora of new radio telescopes which will herald a vast increase in the sensitivity and allow new and ground-breaking research. At the end of this golden path is the billion-dollar Square Kilometre Array (SKA) telescope, but even before we reach the SKA there will be much exciting new science to be done. In this Hudson lecture I will present an overview of radio astronomy and discuss plans for next generation telescopes and what exceptional science will be produced, by way of example I will focus on research into galaxy clusters - the largest gravitationally bound objects in the Universe.

John Field

Branch President



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After a busy 40 minutes of carrying bucket loads of concrete to each hole the template was laid of the central pier, levelled and bolts were placed in. The concrete then needed one week to cure before any further work could be done.



Day Three

On this day all the piles were cut to the correct level and the floor joists were cut and put in place. All nails and straps are of stainless steel ensuring that we should have no trouble with rusty nails in the future. With the use of a nail gun the job was very easy, beats using the hammer!

Day Four

The pier for the telescope was put in place and levelled using lasers and other high-tech gadgets. The pre-painted floor was put in place and a central hole cut out to go around the pier. The outer area was cut to match a 2.4m circle. With that job complete we were ready to attach the dome.

Next month I will go through installing the dome and aligning the telescope.



Research Astronomy Group Meeting

At the last meeting we floated the idea of holding regular Research group meetings.

We will have an initial meeting at 6:30 PM on Wednesday 7 July at Carter, ie after Council meeting and before the main meeting.

Items for Discussion:

Areas that we do/could work in?

(Initials of some who I know are already involved in the topics are shown.)

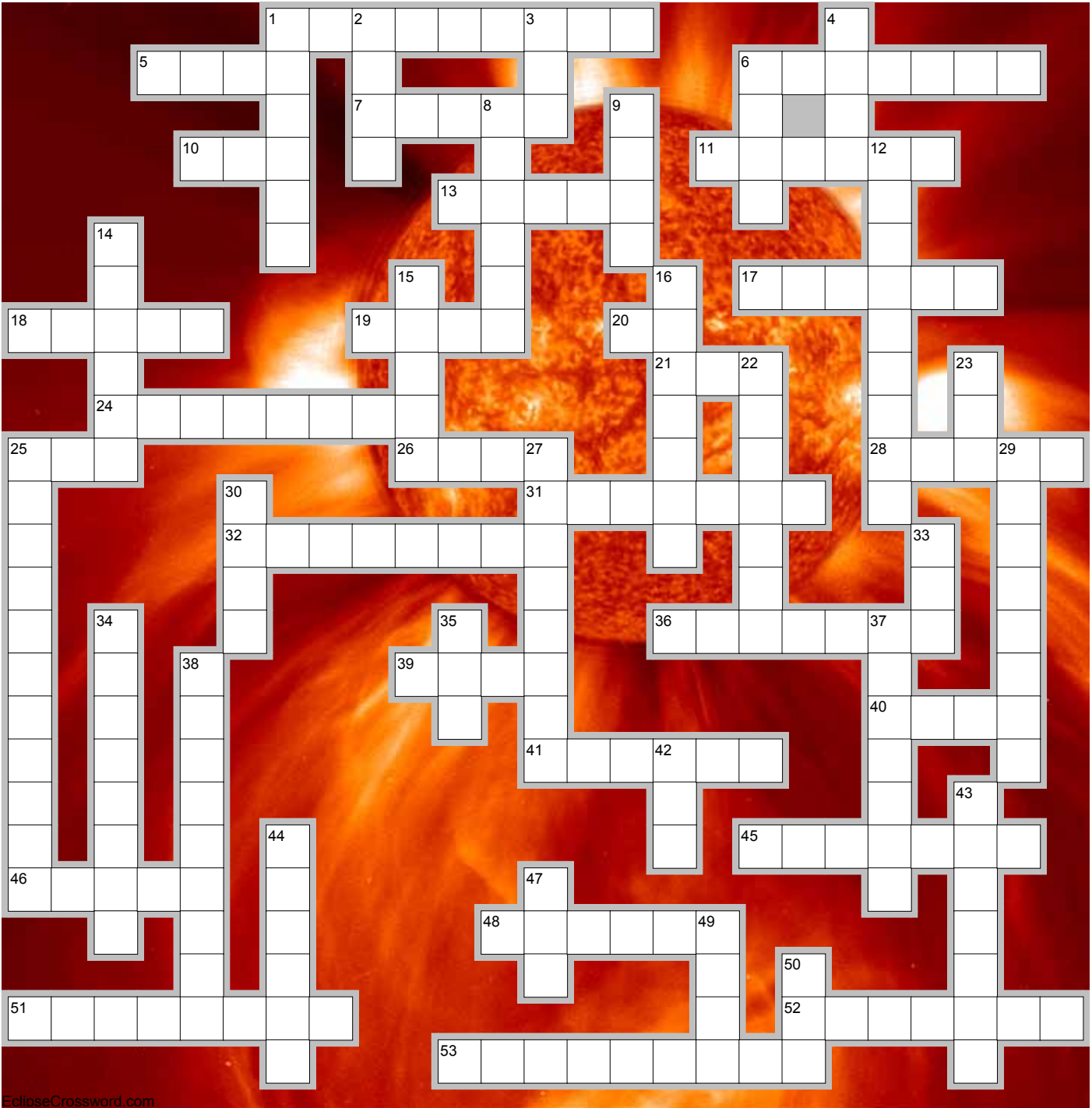
- Variable Stars – GH, FA, AH, JH, ...
- Binary
- Cepheid
- Occultations – JT,GB,GH,RI,FA, MF, RB,WK, ... see <http://was.org.nz/01Occs.html> for events near Wellington for several of these types.
 - Minor Planet
 - TNO - How did June 4 and June 22 events go?
 - Lunar
 - Grazes – July 21 graze ?
 - Close Double stars
- Astrphotography – JF
- Comet hunting , Super Nova hunting
- Sunspots
- Aurora – PM
- Other ?

If you are interested in taking part but can't make the meeting let Gordon Hudson or John Talbot know

- Do we want one group or several?
- Who wants to take part in subgroups?
- Should we have some extra web pages set up for each subgroup?
- These would need to be small and simple or we would have to trim some other pages to keep inside our disk quota.



Cross Word with Murray Forbes



EclipseCrossword.com

Across 1. an asteroid may have done them in; 5. volcano on Io; 6. horizontal angle around the sky; 7. Constellation with Spica; 10. satellite galaxy to the Milky Way; 11. also a small inflated rubber boat; 13. thorn (anagram); 17. You don't want this constellation in a China shop; 18. a very cloudy planet; 19. angels and galaxies both have one; 20. One of the Galilean satellites; 21. could be mistaken for a cloud; 24. A type of star whose core hydrogen has been used up; 25. 24 hours; 26. unit of time; 28. alpha Cygnus; 31. 23rd September; 32. road site (anagram); 36. a catalogue; 39. alpha Lyr; 40. volcano on Io; 41. process that powers stars; 45. An open or globular ...; 46. opposite to zenith; 48. proposed theory of evolution; 51. constellation with a sting; 52. type of telescope; 53. Mars;

Down 1. used to prevent moisture condensing on a telescope; 2. a new star; 3. flying saucer; 4. New Zealander; 6. smallest indivisible piece of a element; 8. Name of ESA spacecraft that intercepted Halley's comet; 9. satellite observatory studying the Sun; 12. Largest galaxy in the Local Group; 14. a double star; 15. Tellus; 16. The North Star; 22. Antabi; 23. an arrested atom; 25. Bending of light around the edge of an obstruction; 27. Main Sequence stars cooler & smaller than the Sun, also the name of a cult sci fi comedy series; 29. plane of Earth's orbit around the Sun; 30. I weight 6 times less on the Moon, but still have the same ???; 33. some spiral galaxies have one; 34. allow some leeway; 35. A lion circling the Earth; 37. to block light from another object; 38. Carter Observatory's public telescope; 42. frozen liquid; 43. A type of pulsating variable star, often used for distance measurements; 44. second most common element; 47. solid, liquid or ...; 49. mid-day; 50. an orbiting telescope;